

CAA Current Operations Support to OIF/OEF

**49th Army Operations Research
Symposium (AORS)**

13-14 October 2010

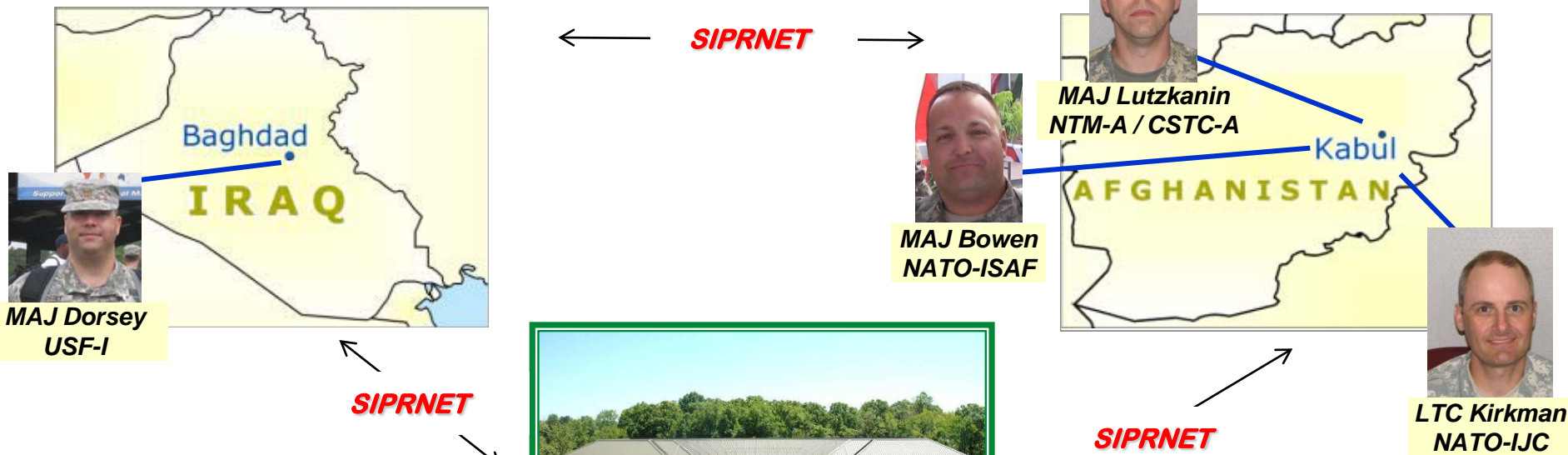
LTC David Smith
Operational Capability Assessments Division
Center for Army Analysis
703-806-5527
david.a.smith@us.army.mil
david.allen.smith@us.army.mil

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE OCT 2010		2. REPORT TYPE		3. DATES COVERED 00-00-2010 to 00-00-2010	
4. TITLE AND SUBTITLE CAA Current Operations Support to OIF/OEF				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Center for Army Analysis,Operational Capability Assessments Division,6001 Goethals Road,Fort Belvoir,VA,22060-5230				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES Social Science Underpinnings of Complex Operations 18-21 October 2010; George Mason University, Arlington Campus.					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 13	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			

CAA Current Operations Missions

- **Deploy analysts in support of ongoing operations.**
 - Rotate analysts at strategic/operational HQ.
 - Deploy additional teams as required.
- **Conduct reachback analysis.**
 - Coordinate reachback support across community as required.
 - Provide analytical support on demand to OEF/OND.
 - Provide analytical support to COCOMs / ASCCs and other organizations as resources permit.
- **Develop/refine Irregular Warfare (IW) analytical capability.**
 - Develop analysis products/concepts supporting the Institutional Army (long term).
 - Spin out capabilities as developed to support Reachback (short term).
 - Enable strategic analysis through development and consolidation of data.
 - .. Define / collect / clean / distribute required data.
 - Coordinate and Integrate with the larger ORSA community.
- **Support the OR community (Military and civilian, Joint, International) through institutional development.**
 - Education: Operational ORSA Course.
 - Materiel: DAST Toolkit program.
 - Doctrine: Update handbooks and participate in doctrine development efforts.
 - .. Tools / techniques / processes: collect / distribute / refine.
 - History: Maintain historical perspective on role of agency in ongoing operations.

CAA Deployed Analysts



Battle Rhythm

- Weekly activity reports
- Biweekly coordination meeting
- Regular Secure VTCs
- Reachback as required

Selected Subjects

- Assessments
- Force Generation
- Force Requirements
- Database Reconciliation
- Geospatial Support
- Risk Analysis
- Wargaming

Enduring CAA Support – 74 Deployments, 13 Supported Commands, 33 man-years

USF-I: United States Forces Iraq
ISAF: International Security Assistance Force
IJC: ISAF Joint Command
NTM-A / CSTC-A: NATO Training Mission – Afghanistan / Combined Security Transition Command - Afghanistan

Selected Reachback Projects (2009-2010)

U.S. ARMY



- **Assessments**

- Geospatial support to 25th ID (2009)

- **Size, Composition, Risk**

- OIF size and force structure (2009)
- CF drawdown analysis (2009)

- **Database support**

- Media analysis (2009)
- Geospatial support to USF-I (2010)

- **Assessments**

- National level (CENTCOM CIG) (2010)
- District level (CENTCOM J-2 COE / IJC) (2010)
- Provincial level (ISAF AAG) (2010)
- CSTC-A assessments (Summer 2009)
- Freedom of movement (2010)

- **Size, Composition, Risk**

- ANSF generation simulation model (current)
- Force level analysis (CF and ANSF) (2009-10)
- Quality analysis (2010)
- Likelihood of success (2010)
- Transition analysis (2010)
- QRF Battalion Composition

- **Database Support**

- Consolidation of polling data (2010)

CF: Coalition Force

USFI: United States Forces - Iraq

CIG: Commander's Initiative Group

COE: Center of Excellence

ISAF: International Security Assistance Force

AAG: Afghanistan Assessments Group

IJC: ISAF Joint Command

CSTC-A: Combined Security Transition Command –
Afghanistan

ANSF: Afghanistan National Security Force

IW Development

U.S. ARMY

- **Tools / Models / Techniques**
 - **Mathematical Modeling**
 - .. Irregular Warfare – Quantitative Analysis of Historical Database (binary logistics regression)
 - .. Force Level Analysis of Counter-insurgency (multi-variate regression)
 - .. Modeling the Effects of Essential Services, Security, Economics, and Employment (binary logistics regression)
 - **Simulation**
 - .. Coalition Force Drawdown Analysis (Monte Carlo simulation)
 - .. Afghanistan National Security Force Growth and Retention Analysis (discrete event simulation)
 - **Case Studies**
 - **Wargaming**
- **Database Development**
 - **CAA IW Database**
 - **Afghanistan Consolidated Knowledge System**

CAA has developed and used a wide range of analytical tools / models / techniques to address issues facing senior commanders in OEF and OIF.

Data Source Development (1 of 2)

CAA IW Database

- Historical database of 102 Irregular Wars
- Located on Joint Data Support (JDS) website <https://jds.pae.osd.mil/Default.aspx>
- Per conflict, 46 fields providing annual data on:
 - Country data
 - Forces involved
 - Outcome
- Used to:
 - Determine significant variables affecting outcome of Irregular Wars
 - Conducting predictive analysis on current/future conflicts
 - Identify past Irregular Wars for focused case studies

Applications:

- Review of Security Forces Growth (RSFG); Center for Army Analysis, POC: Stuart Wilkes
- Force Sizing for Stability Operations; Institute for Defense Analyses, POC: Royce Kneece
- Force Level Analysis for Counterinsurgency (FLAC); Center for Army Analysis, POC: Steven Goode
- IW – Quantitative Analysis of Historical Database; Center for Army Analysis, POC: Justine Blaho
- POC: Ms. Justine Blaho, justine.blaho@us.army.mil

Data Source Development (2 of 2)

Afghanistan Consolidated Knowledge System

- Consolidation of available data needed for strategic analysis
 - Perception data
 - .. Polling (35 waves / 7 surveys ...and growing)
 - ANSF data
 - .. Locations, strength, CM ratings...
 - CF data
 - .. Location, strength
 - Afghanistan data
 - .. Population, ethnicity...
- Interface being developed to filter data to specified location, timeframe, issues
- Located on AKO-S
 - Intent to move to JDS
- Used to:
 - Inform assessments
 - Develop IW models
- POC: Ms. Christina Krause, christina.krause@us.army.mil

Mathematical Modeling (1 of 2)

Force Level Analysis for Counterinsurgency (FLAC)

- What model does:
 - Determines threshold force required to stop violence from increasing.
 - Determines when violence stops increasing (given a force size over time).
- Background: developed from 23 historical insurgencies since 1945. (Includes Malaya, Algeria, Kenya, Columbia, Sri Lanka, Contras, Shining Path...).
- Multi-variate regression.
- Independent variables: security force strength, population, annual security force KIAs.
- POC: Mr. Steve Goode, steven.goode1@us.army.mil.

IW – Quantitative Analysis of Historical DB (IW-QAHD)

- What model does: Calculates likelihood of COIN force success based on historical COIN Operations.
- Background: developed from 74 historical irregular wars (58 COIN Operations) since 1945.
- Binary logistic regression.
- Independent variables: number of insurgent factions, insurgents cause and strength of conviction, development state of intervening forces, peak COIN force to peak insurgent ratio.
- POC: Ms. Justine Blaho, justine.blaho@us.army.mil.

Mathematical Modeling (2 of 2)

Modeling the Effects of Essential Services, Security, Economics, and Employment

(MEESSEE)

- What model does: Identification of significant factors influencing peoples support of government.
- Binary logistic regression.
- Data utilized is polling data from OIF and OEF.
- POC: Dr. Adam Shilling, adam.p.shilling@us.army.mil

Simulation

Coalition Force Transition Analysis (CFT)

- **What model does:** Estimates continuing force requirements and violence over time once 'threshold' force achieved.
- **Background:**
 - FLAC develops estimates of threshold force necessary to stop violence; but does not address what happens next.
 - Simulation draws on distributions of population changes over time, violence (KIAs) that occurs, and resultant force level requirement.
- Monte Carlo simulation.
- Validated against Iraq data (violence, force levels)
- POC: LTC Dave Smith, david.a.smith@us.army.mil

ANSF Growth and Retention Analysis Model (AGRAM)

- **What model does:**
 - Determines flow of Afghan National Army (ANA) forces through the training base and the impact of training system changes.
 - Forecasts future end strength.
- ProModel discrete event simulation.
- **Background:**
 - Developed to analyze ability to generate indigenous force strength required for the ANA.
 - Developed by team which deployed to Afghanistan and conducted interviews and site visits at training facilities, and from historical data on the ANA.
- Undergoing validation against historical growth of ANSF.
- POC: MAJ Enrique Torres, enrique.torres@us.army.mil

Case Studies / Wargames

Case Study: Review of Security Force Growth (RFSG)

- What report does: Identification of lessons learned in earlier irregular wars on the growth of forces; identification of initial indicators for assessments.
- Case study of nine COIN wars: includes the Greek Cypriot insurgency, Afghan Mujahidin, Afghan Taliban/AQI Insurgency, post-2003 Iraqi insurgency, Malaya, Vietnam, and the Philippines.
- White paper distributed to sponsors in Afghanistan.
- POC: Mr Stu Wilkes, stuart.t.wilkes@us.army.mil

Wargames

- What wargaming does:
 - Ability to address key security issues of a counter-insurgency, as well as those political, diplomatic and economic factors that impact security.
 - Identification of force size and capability requirements.
 - Identification and/or assessment of risk.
- Multi-player Counterinsurgency Wargame:
 - Context/situation specific.
 - Theater, Provincial, and Brigade level resolution.
 - Quarterly (1 turn = 3 months), 24-36 months timeline.
 - Blue / green / red / white / black players - number and role dependent upon situation.
- CAA has used variations of its COIN wargame 10 times to inform analysis in Iraq, Afghanistan, the Republic of Korea, and AFRICOM.
- POC: Mr Stu Wilkes, stuart.t.wilkes@us.army.mil

CAA Role in Institutionalizing Current Operations Support

U.S. ARMY

- **Doctrine**
 - Commander's & Deployed Analyst Handbooks
 - CAA History of ORSA support to OIF and OEF
- **Organization – Army ORSA Reachback Central**
- **Training**
 - Pre-deployment analyst training course (2 x yr) (O-Course)
 - Site visits to CAA for analysts preparing to deploy
- **Materiel – high-end software/hardware packages to deploying analysts**
- **Leadership and Education**
 - AORS, MORS, International Symposia, and schools
 - Educational opportunities for deploying analysts
- **Personnel**
 - 6-month rotations at major theater headquarters
- **International – share doctrine, training, and leadership/education opportunities with international partners (AUS, CAN, FR, GE, UK)**

ORSAs, military and civilian, Joint, and international, are improving capability to support the warfighter

CAA has played an integral role as ORSA analysts make significant contributions to ongoing operations in both deployed positions and in reachback.

IW analysis capability is being developed to support both the warfighter and the institutional Army.